

METHOD AND DEVICE FOR THE DETECTION OF MICROORGANISMS BY FIBER OPTICS

ABSTRACT

The objective of the present invention is the
5 detection/ monitoring of microorganisms present in the
air, water or foodstuffs through the use of a fiber optic
biosensor with an evanescent-field. A first
concretization of the present invention concerns a method
for detection of contamination by specific microorganisms
10 through the use of the evanescent-field of a sensitive
fiber optic characterized by stages of: a) exposing the
evanescent-field of the sensitive fiber optic using an
appropriate technique based on physical and chemical
properties; (b) permitting immediate contact of the
15 exposed evanescent-field obtained in the stage (a) with
the sample to be examined, with the aforementioned sample
having a form adequate so as to obtain the generation of
an optical signal in response to the presence of
microorganisms in the sample; and, (c) demodulating the
20 optical signal generated in stage (b) and using this value
to quantify the microorganisms through an appropriate
method. In a second concretization, the invention is
directed to a composition for use in the detection of
microorganisms characterized by comprising a selective
25 culture medium for microorganisms needing to be detected
and reactants capable of altering the properties of the
medium to favor the interaction of the system fiber-
microorganism interaction. In a third concretization the
invention refers to a device for surveying microorganisms

through the insertion of a sensitive fiber optic (11),
with an adequately exposed evanescent-field, into a
surface or volume of a biological culture medium (12)
specific for the microorganism to be detected, comprising
5 a demodulation system based on a fiber optic circuit and
related components.